ABSTRACT

The rising concentration of greenhouse gases in the Earth’s atmosphere has affected every geophysical system on which human beings depend. The warming planet affects all human systems including food supply, health, security, property, business, jobs, markets, and economies. The most severe consequences to climate change are felt in low and middle income regions, countries/economies where communities are heavily dependent on fossil fuels. In these regions, fossil fuels are cheap and accessible and for provide only the most basic energy needs. Currently, one billion people worldwide have no access to a reliable energy source. The demands for the immediate cessation of fossil fuels are almost exclusively from economically and energy privileged industrialized nations. Justice in climate change mitigation recognizes that fossil fuels and renewable energy sources will co-exist, possibly for the next century. Successful mitigation will be a conglomeration of technologies executing multiple scenarios requiring broad coalitions with varying adaptabilities transcending the binary of fossil fuels and renewables. A suite of transitional technologies exists that utilizes fossil fuels to meet energy needs while insuring near zero GHG emissions. Carbon Capture. Our conclusions, supported findings of the UN Intergovernmental Panel on Climate Change, are that carbon capture technologies are a critical element to achieving climate justice together with climate change mitigation.

ENERGY POVERTY

Energy poverty, affecting 1 billion people worldwide, is the inability to access reliable energy sources. The implications are far-reaching. Given the pandemic, one facet of an insufficient energy supply worthy of critical analysis is health care. There is a lack of modern medical equipment to diagnose and treat, no refrigeration for vaccines or to maintain a blood supply, etc., no diagnostic tests e.g., x-rays. There is virtually no path to health, wellbeing and prosperity – much less a livable standard of care – without access to energy generation capable of supporting industrialization, infrastructure, health care, education, and jobs.

ENERGY TRANSITION

The world has never been faced with a technological challenge as critical as the one before us - to reduce greenhouse gases and mitigate climate change with greatest consideration to climate-marginalized communities. The aggressive decarbonization goals targeting 2050 require a planned transition involving aspects of economics, politics, society, and ethics. To meet these goals, fossil fuels and renewables will co-exist, particularly in the Energy sector.

Renewable energy will be the sole source of energy for the planet, someday. Today, costs are decreasing and operational efficiencies for renewable technologies are improving. However, re-engineering the grid, providing large-scale consistent generation, insuring low reactive power to re-charge from blackouts – essentially delivery and storage that include marginalized communities – are the practical issues that underscore continued use of fossil fuels. The use of fossil fuel use to produce electrical power is commonly viewed as being at odds with global and domestic environmental goals. There is no fundamental reason why energy production should contribute to climate change.

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